

APPENDIX J

Government Cost Estimate Procedures for Developing the Adjusted Status Quo Cost

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Adjusted Status Quo Cost Estimate

1.0 Purpose

The November 1997 Defense Reform Initiative directs the U.S. Armed Forces to privatize their utility systems, except where those systems are needed for unique security reasons or privatization would not be economical. The Air Force Utilities Privatization Policy and Guidance Manual and subsequent Air Force policy require an economic analysis comparing the *Government Cost Estimate* for the status quo with the best value privatization proposal to determine if privatization is economical. The economic analysis shall conform to the guidelines specified in OMB Circular A-94 and AFM 65-506.

This Appendix documents the process that will be used to develop the *Government Cost Estimate* for operating and maintaining utility systems. The *Government Cost Estimate* represents the Government's cost on an annual basis for operating and maintaining the utility system. The underlying challenge is to produce an estimate that is an accurate portrayal of the true cost to the Government for operating and maintaining the utility system. If only a portion of the Government's true costs are included in the estimate, the estimate would understate the Government's cost and it may incorrectly appear that privatization is not economical. A good understanding of how the development of the *Government Cost Estimate* is also necessary for the source selection team to assess privatization proposals for cost realism. This report only addresses the Government's operations and maintenance cost component of the certified economic analysis. The other Government cost components of the certified economic analysis are capital investments for renewals and replacements of system components and deficiencies. Cost for renewals and replacements and deficiencies will be included in the economic analysis and guidance will be addressed in the latest P&G clarification memo.

The Air Force's cost accounting systems do not keep track of the costs related specific to operating and maintaining utility systems. In other words, the process of determining the operations and maintenance costs for a particular utility system cannot be obtained from a single data source or report. The cost must be built from numerous data sources that capture elements of the cost that make up the total cost of operating and maintaining the utility system. A number of factors effect the quality of the data, such as different bases maintaining the data in slightly different ways, data not being available and therefore estimated, data needing to be corrected due to inaccuracies, and general assumptions being applied for some cost elements because of the difficulty to accurately determine or estimate the cost. Therefore, the end result is a *Government Cost Estimate*, as opposed to a precise accounting of Government utility cost.

2.0 Cost Categories

To accurately estimate the cost for operating and maintaining the utility system, there must first be a clear understanding of the types of cost that are involved. The *Government Cost*

Estimate is based three major categories; direct costs, incremental direct cost, and general and administrative costs. **Figure 2-1** is an illustration of the three cost categories that are addressed by the estimate. The pyramid shape represents the estimate and shows the magnitude of each category relative to the estimate as a whole.

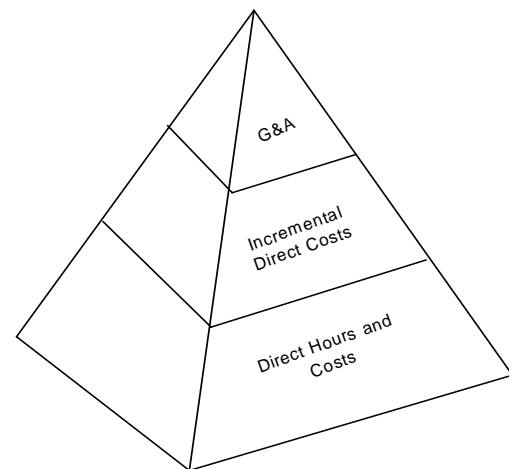
2.1 Direct Costs

The foundation of the estimate (pyramid) is the direct cost. Direct cost are those cost that represent the day to day costs that are directly associated with operations and maintenance. Direct costs include direct labor (salaries and benefits), materials, equipment, vehicles, facilities, and other direct costs. Work that represents direct cost is work that is required on the utility system itself and can be performed either by government personnel or by contract.

2.2 Incremental Direct Costs

The middle portion of the pyramid represents incremental direct cost. Incremental direct costs include the cost for supervisors, work controllers, planners, maintenance engineers, material control personnel, and others who do not charge directly to a utility system cost account. The costs are direct costs for operations and maintenance; however, the costs are captured collectively and then incrementally distributed to all utility system cost accounts. Incremental direct cost can be viewed as the first layer of overhead. For utility systems, it is the cost of oversight and management of the utility shops.

FIGURE 2-1
Cost Categories
Government Cost Estimate



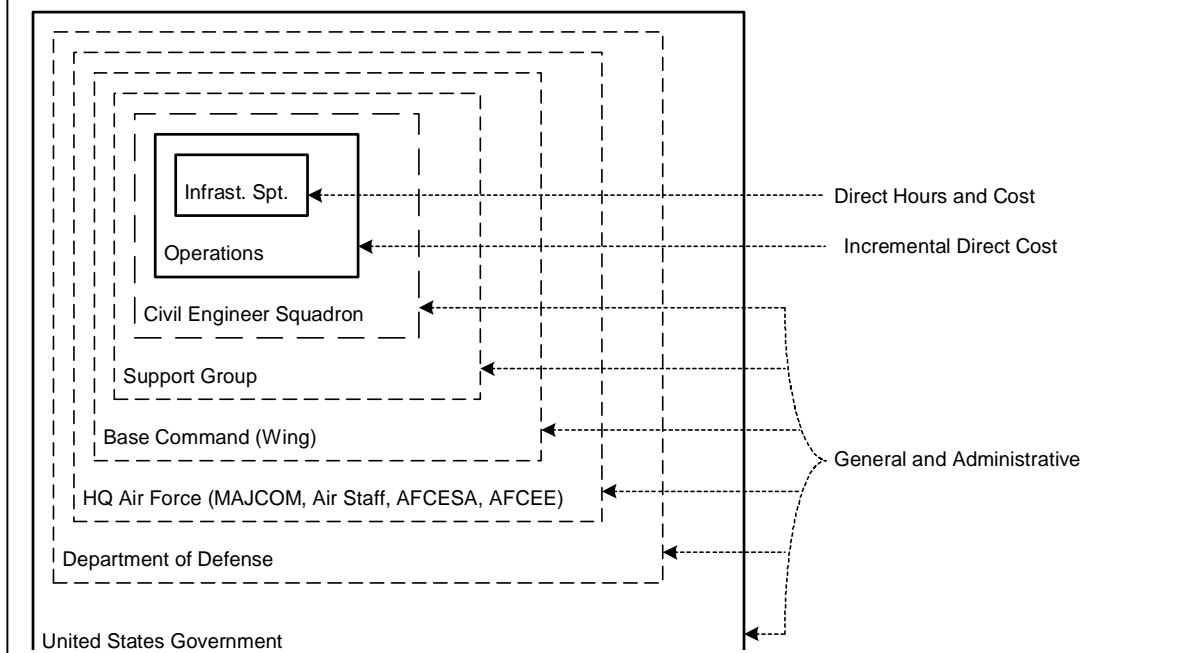
2.3 General and Administrative Costs

The top portion of the pyramid represents general and administrative (G&A) costs. G&A costs cover the cost of management layers, functions, government insurance, and other indirect costs that are not directly attributable to the activity being performed (i.e. direct cost). Since 10 USC 2688 requires utility privatization to be “*economic to the Government*” before a system can be privatized, the G&A for the *Government Cost Estimate* must include overhead costs specific to the installation.

Figure 2-2 shows the organizational structure for a typical Air Force base. In figure 2-2, direct costs originate at the shop level¹, represented by the Infrastructure Support Shop within the Operations Flight. Costs outside the Operations Flight are categorized as general and administrative (G&A).

¹ Some direct costs occur outside the Infrastructure Support Shop, such as disposal costs paid by the Environmental Flight for waste generated by the Infrastructure Support Shop. This is addressed in detail in Section 5.0, Cost Estimating Approach.

FIGURE 2-2
Direct, Incremental Direct, and G&A Costs
Government Cost Estimate



The remainder of this report provides a more detailed discussion of the cost components within the cost categories that make up the *Government Cost Estimate*.

3.0 Introduction to the Cost Components of the Estimate

Within the three cost categories (direct, incremental direct, and G&A) shown in Figure 2-1 and the organizational relationship to the cost categories shown in Figure 2-2, several components of cost must be determined and estimated. Some components are derived from evaluations of existing reports, some are estimated, others calculated, and others are cost factors. **Table 3-1** shows the relationships of cost category, organization, and component and indicates the method used to develop the cost for the *Government Cost Estimate*.²

TABLE 3-1

² Records are the preferred data source if the information is accurate and reliable. The next preference for determining cost is using calculations, followed by cost factors and then estimation. The "marked" development methods shown in Table 3-1 show the anticipated methods for each cost component. Ultimately, the available data at the base will determine which method or methods are used to develop each cost component.

Cost Category, Organization, Cost Component, Cost Development Method
Government Cost Estimate

| Cost Category | Organizations | Cost Component | Cost Development Method | | | |
|--------------------------|--|----------------|-------------------------|------------|--------|-----------|
| | | | Records | Calculated | Factor | Estimated |
| Direct Cost | Infrastructure Support or Utility Operations | | | | | |
| | Civilian Hours | Labor | X | | | |
| | Civilian Labor Rate | Labor | | X | | |
| | Civilian Benefits | Labor | | | X | |
| | Military Hours | Labor | X | | | |
| | Military Labor | Labor | | X | | |
| | Military Markup | Labor | | | X | |
| | Materials | Non Labor | X | X | | |
| | Vehicles | Non Labor | X | X | | |
| | Facilities | Non Labor | | X | | |
| | Contracts | Non Labor | X | | | |
| | Environmental | Non Labor | | | | X |
| | Support Utilities | Non Labor | | X | | |
| | Other CE Costs | Non Labor | X | | | |
| Incremental Direct Costs | Operations Flight | Labor | | X | | |
| | Civil Engineering, Transportation Squadron | Insurance | | X | | |
| G&A | Civil Engineer Squadron, Support Group, Base Command (Wing), HQ USAF, DoD, US Government organizations | Markup | | | X | |

4.0 Data Sources

To the maximum extent practical, the *Government Cost Estimate* will be developed primarily from data available from existing Air Force data sources. Two methods of data collection will be used. The first method includes obtaining financial information from the Work Information Management System (WIMS) and other systems, such as the transportation squadron's computer files. The second method of data collection consists of interviews with Base personnel to discuss data management practices. Three CE reports within WIMS, and one customized report created from data downloaded from WIMS provide the foundation for developing and/or validating the cost estimate:

- Civil Engineer Monthly Report (PCN SF 022-461)
- Civil Engineer Cost Report (RCS 7101)
- Shop Rate Analysis Report (PCN SF 022-474 and/or 475)
- Microsoft Excel Spreadsheet of All Work Orders (created from information downloaded from WIMS, see section 5.1.1.1, Correcting Direct Labor Hours by Reviewing Work Orders)

Data from other sources, not traditionally included in the CE reports, may also be used to validate, and correct as necessary, data from the above reports. The following is a list of data sources that may be necessary to develop the cost estimate. Obtain the latest copy of all documents, regulations, AFIs, manuals, Background papers, etc.

- All BCE Cost Center Reports
- Account Code Reference File
- Military Pay File Updater and Source Documents
- Civilian Pay File Updater and Source Documents
- AFI 65-503 Tables
- Civilian Rate Schedules
- Cost & Performance Report from Transportation
- Historical Air Force Construction Cost Handbook
- Bullet Background Paper on Facility Costs (HQ AFCESA/CESC)
- Form 9 and IMPAC logs
- Manpower Information
- Communication Squadron Information
- Training Information
- Information from the Environmental Flight and Bio-environmental engineer
- Recurring Work Program Reports
- Civil Engineer Organization Chart
- Civil Engineer Vehicle Listing
- Current Year Utility Rate Set-Up Sheets (AF form 3556)

Personnel from the Civil Engineer (CE) squadron and personnel from other organizations (Base transportation, bio-environmental engineer, and the communication squadron) that manage utility-related data should be interviewed to obtain information about the financial data that may not be available in existing reports and to determine the reliability of the data. The following key personnel should be interviewed:

- CE Resources Personnel (Finance and Real Estate)
- CE Operations Personnel (Utility Shops, Logistics, and Maintenance Engineering)
- CE Environmental and Bio-environmental Engineer Personnel
- CE Vehicle Management Personnel
- Communication Squadron Personnel
- Base Transportation Personnel

5.0 Cost Estimating Approach

The *Government Cost Estimate* is developed in three basic steps: 1) determine the direct cost (labor and non-labor cost components), 2) calculate the annual incremental direct labor costs, and 3) apply G&A to all labor costs.

5.1 Annual Direct Costs

Direct costs are those costs that are directly attributable to the operations and maintenance of the utility of the system. They include such components as direct labor, materials, vehicles, facilities, and contract costs. Direct costs are typically collected in cost account codes (CACs) that are specific to an activity. The following paragraphs discuss the separate components of the annual direct costs.

5.1.1 Annual Direct Labor Hours

Direct labor hours are based on records. The Civil Engineer Cost Report (RCS HAF-LEE (SA) 7101) is used as the starting point for determining the total labor hours that will be used in the *Government Cost Estimate*. The 7101 report shows total labor hours by cost account code (CAC) for a fiscal year.³ Using the 7101, the CACs specific to the utility system being studied should be selected as an initial baseline for the labor hour estimate. **Table 5-1** shows the CACs that represent the electric, natural gas, water, wastewater, and heating utility systems.

For example, using the 7101 report, the CACs shown in **Table 5-2** would be chosen as the activities that represent O&M of a wastewater system.⁴ The table is reduced to show only those CACs to be used as the baseline for the wastewater utility system.

³ The 7101 report may not capture all of the account codes that need to be included in the estimate. For example, work performed on utilities in MFH that is being privatized may be charged against account codes not found on the 7101.

⁴ The CACs chosen to represent the baseline hours should be based on the utility system being privatized and an assessment of the actual CACs with accrued labor hours and costs on the 7101 report.

TABLE 5-1
Utility System Cost Account Codes
Government Cost Estimate

| Utility System | CAC | Account Title |
|-----------------------------------|--------------|--|
| Utility Operations | | |
| | <i>21000</i> | <i>Purchased Utilities</i> |
| Water | 21010 | Purchased Water |
| Electric | 21020 | Purchased Electricity |
| Natural Gas | 21030 | Purchased Gas |
| Wastewater | 21040 | Purchased Sewage & Liquid Industrial Waste Disposal |
| | <i>23000</i> | <i>Heating Plants, 1.5 MBTU or Greater</i> |
| Heating | 23010 | Operations of Heating Plants |
| Heating | 23040 | Purchased Gas Heating Plants |
| Wastewater | <i>27000</i> | <i>Sewage and Waste Systems</i> |
| Water | <i>27500</i> | <i>Water Plants and Systems</i> |
| Other | <i>28000</i> | <i>Air Conditioning & Refrigeration Plants</i> |
| Other | <i>29000</i> | <i>Utilities Other</i> |
| <u>Utility Maintenance</u> | | |
| | <i>53000</i> | <i>Utility Plants and Distribution System Maintenance</i> |
| Electric | 53015 | Maintenance of Electric Distribution Systems |
| Heating | 53020 | Maintenance of Heating 1.5 MBTU or Greater |
| Heating | 53030 | Maintenance of Heat/Steam/Hot Water Systems |
| Natural Gas | 53035 | Maintenance of Gas Distribution Systems |
| Wastewater | 53040 | Maintenance of Other Utility /Distribution Systems |
| Wastewater | 53050 | Maintenance of Industrial Wastewater Systems |
| Water | 53060 | Maintenance of Water Supply |
| Other | 53070 | Maintenance of Air Conditioning Plants and Distribution |
| Other | 53080 | Maintenance of Other Utility Plants and Distribution Systems |

Note: Indented account titles represent those CACs that roll up into a higher CAC. For example, all of the CACs from 53015 through 53080 are totaled on the 7101 under CAC 53000.

TABLE 5-2
Initial Labor Hours Baseline
Government Cost Estimate

| CAC | Account Title | Labor Hours | | |
|----------------------------|--|-------------|----------|--------|
| | | Civilian | Military | Total |
| <u>Operations</u> | | | | |
| 27000 | Sewage and Waste Systems | 37 | 0 | 37 |
| <u>Utility Maintenance</u> | | | | |
| 53040 | Maintenance of Other Utility /Distribution Systems | 9,671 | 750 | 10,421 |
| 53050 | Maintenance of Industrial Wastewater Systems | 0 | 0 | 0 |
| Total | | 9708 | 750 | 10,458 |

The hours shown for the example in **Table 5-2** are taken from the 7101 report and represent the initial baseline⁵ of direct labor hours for the system's *Government Cost Estimate*. The hours reported on the 7101 are derived from work orders, which are assigned to specific CACs. "Work orders" include direct scheduled work, work orders and recurring work. The total labor hours are calculated by summing the labor hours charged to each work order. Corrections need to be made based on a review of the work orders and a review of the recurring work program (RWP).

5.1.1.1 Correcting Direct Labor Hours by Reviewing Work Orders

Reviewing the work orders will identify work that may have been charged to the "wrong"⁶ cost account code (wrong utility system), work that was performed that was not operation and maintenance (O&M) of the utility system (capital improvements), or work that was not reflected on the 7101 but should be included in the estimate.

The **BCE Monthly Cost Report (PCN SF 022-461)** lists work orders by cost account code on a monthly basis. The 461 report shows labor hours charged, and associated cost elements, against each work order assigned to each cost account. For a given fiscal year the total labor hours and associated costs for the twelve monthly 461 reports will add up to the total hours and costs on the 7101 report.

The 461 report does not have all of the information needed to determine if the work order is assigned to the proper cost account code (for example, the 461 report does not include work order descriptions or titles). The 461 may also not include all of the work orders performed on elements of the utility system being privatized (determined by the points of demarcation) or that are within military family housing (MFH). Based on the demarcation points in the right-of-way, this work may need to be included as part of the utility system O&M.⁷

⁵ The initial baseline is the number to which hours will be added or subtracted based on an analysis of individual work orders.

⁶ In the context of this analysis, "wrong" means work represented by the work order should be subtracted from the CAC it is assigned to and added to a different CAC.

⁷ This would be the case if the point of demarcation for privatization of the utility system includes work that would normally be assigned to other cost accounts (e.g., facilities or MFH). For example, maintenance of utility systems within MFH is performed on work orders; however, the work orders may be assigned to cost account codes that are not reflected on the 7101 or 461

Reviewing work orders can most efficiently be done if detailed work order listings are entered into a Microsoft Excel spreadsheet. The spreadsheet should include all work orders (including all direct scheduled work, collection work orders, projects, service contracts, etc.) for all CACs for the fiscal year being used as the baseline.⁸ This spreadsheet can be created manually (based on the 461 and other work order reports); however, downloading it from WIMS is preferred.⁹ This may take several steps to include all of the work orders that must be reviewed since they are all not contained within the same data files in WIMS. The spreadsheet should include the following fields of information and should be provided in electronic format to the analyst preparing the *Government Cost Estimate*:

- Work Order Create Date
- Facility ID or Facility number
- Cost Account Code
- Work Order Number
- Work Order Title or Description
- Record Status
- Work Order Indicator
- Cost Center
- Labor Utilization Code
- Civilian Labor (hours and cost)
- Military Labor (hours and cost)
- Project Contract Cost
- Service Contract Cost
- Direct Material Cost
- Other Cost
- Total Cost

Once the spreadsheet has been created, a quick review should be done to validate the data with respect to the totals on the 7101 report. Several CACs reported on the 7101 should be chosen and compared with the data on the spreadsheet.¹⁰ If there is a discrepancy with respect to the totals, the 461 report should be used to determine if there is a problem with the data on the spreadsheet.¹¹

Using the information on this spreadsheet, all of the work orders should be reviewed to identify the work orders that were not assigned to the correct cost account code. This is accomplished by reviewing the work order title or description to see if the work described

reports. Another example is the maintenance of natural gas regulators associated with specific buildings. This work is often performed on a work order that is assigned to a building cost account code.

⁸ The baseline fiscal year should be the most current complete fiscal year unless justification can be made for using a prior year. Justification for using a prior fiscal year should be documented and included with the estimate.

⁹ The selection criteria used to extract work order records from WIMS should be the same as is used to create the 461 reports.

¹⁰ Note that the 7101 report only shows select CACs. The spreadsheet will probably include work orders charged to cost accounts not shown on the 7101. These CACs **should not** be used as a basis for validating the spreadsheet and 7101 report.

¹¹ The total hours and costs may not match exactly. The 7101 report shows totals for work performed within the fiscal year. Depending on the selection criteria used to download work order records to the spreadsheet, there may be an overlap between fiscal years that can only be corrected by examining the 461 reports.

matches the cost account code activity. If the work order is utility related and not assigned to the correct cost account code, flag the work order¹² according to the following:

(D) – delete the work order, the work should have been assigned to a CAC that is not related to utility O&M. This flag is only used for work orders assigned to one of the CACs related to utility O&M.

(E) – reassign the work order to the electric system. This flag indicates an electric system work order was assigned to a non-electric system CAC.

(G) – reassign the work order to the natural gas system. This flag indicates a natural gas system work order was assigned to a non-natural gas system CAC.

(W) – reassign the work order to the water system. This flag indicates a water system work order was assigned to a non-water system CAC.

(WW) – reassign the work order to the wastewater system. This flag indicates a wastewater system work order was assigned to a non-wastewater system CAC.

(S) – reassign the work order to the steam system. This flag indicates a steam system work order was assigned to a non-steam system CAC.

After the work orders have been reviewed and flagged, a list should be created of all of the work orders that have been flagged. This list should include the flag, work order number, work order description, civilian labor hours, military labor hours, and direct material cost.¹³ For Example, **Table 5-3** is a table of work orders that have been flagged.

TABLE 5-3
Flagged Work Orders
Government Cost Estimate

| FLAG | CAC | WO # | WO Description | Civilian Hours | Military Hours | Direct Material |
|------|-------|-------|----------------------|----------------|----------------|-----------------|
| D | 53040 | H3040 | BOILER LEAKING | 35 | 0 | 0 |
| WW | 50100 | H3846 | PUMP MANHOLES 36 AND | 16 | 0 | \$20 |
| E | 49000 | H7194 | EXPOSED ELECTRICAL W | 2 | 0 | \$25 |
| E | 49000 | J4582 | ELECTRICAL INOP | 2 | 0 | 0 |
| E | 50100 | H1505 | RPL TRANSFORMER | 32 | 0 | \$3,000 |
| WW | 50100 | H7777 | MANHOLE OVERFLOW | 4 | 0 | 0 |
| WW | 51040 | J4158 | SEWER COVER CRACKED | 64 | 0 | \$1,750 |
| WW | 72271 | H0954 | SEWER LINE BREAK | 32 | 0 | \$650 |
| WW | 72271 | H1776 | CLEAN OUT SEWER LINE | 4 | 0 | 0 |

¹² A separate list of flagged work orders can be created or, the spreadsheet with the work orders can be modified to include a column to record the flag information. This column would then allow the spreadsheet to be filtered to just those work orders that are flagged.

¹³ Data on direct materials cost is needed as a flag for potential capital improvements.

The next step is to identify work orders that represent capital improvements rather than O&M. Capital improvements are not included in the *Government Cost Estimate* for O&M, but will be included separately in the economic analysis process. This review is only done for those work orders assigned to utility-related CACs and those work orders flagged in the prior step. This review can be done at the same time work orders are reviewed to see if they are correctly assigned to the right CAC; however, since only utility-related CACs need to be reviewed to eliminate work orders for capital improvements, it is recommended that this review be done as a second step. This second step then only requires looking at work orders for utility-related CACs. A good indicator of a capital improvement work is material cost. Work orders with material costs greater than \$1,000 should be reviewed in more detail to determine if the work is capital improvement or O&M.¹⁴

Work orders that are determined to be capital improvement should be deleted. For work orders that are already flagged as E, G, W, WW, or S, change the flag to D. For work orders that are not flagged, add to the list of flagged work orders. **Table 5-4** is a revised list of flagged work orders.

TABLE 5-4
Revised Flagged Work Orders
Government Cost Estimate

| FLAG | CAC | WO # | WO Description | Civilian Hours | Military Hours | Direct Material |
|----------|--------------|--------------|-----------------------------|----------------|----------------|-----------------|
| D | 53040 | H3040 | BOILER LEAKING | 35 | 0 | 0 |
| WW | 50100 | H3846 | PUMP MANHOLES 36 AND | 16 | 0 | \$20 |
| E | 49000 | H7194 | EXPOSED ELECTRICAL W | 2 | 0 | \$25 |
| E | 49000 | J4582 | ELECTRICAL INOP | 2 | 0 | 0 |
| <i>D</i> | <i>50100</i> | <i>H1505</i> | <i>RPL TRANSFORMER</i> | <i>32</i> | <i>0</i> | <i>\$3,000</i> |
| WW | 50100 | H7777 | MANHOLE OVERFLOW | 4 | 0 | 0 |
| WW | 51040 | J4158 | SEWER COVER CRACKED | 64 | 0 | \$1,750 |
| WW | 72271 | H0954 | SEWER LINE BREAK | 32 | 0 | \$650 |
| WW | 72271 | H1776 | CLEAN OUT SEWER LINE | 4 | 0 | 0 |
| <i>D</i> | <i>53015</i> | <i>J0175</i> | <i>RPL TRANSFORMERS</i> | <i>32</i> | <i>0</i> | <i>\$1,599</i> |
| <i>D</i> | <i>53040</i> | <i>H5495</i> | <i>RPL MOTOR FOR RECORD</i> | <i>64</i> | <i>0</i> | <i>\$2,850</i> |

Notes:

Work Order H1505 was changed from E to D based on a review of its material costs and the determination that the work was a capital improvement. Work Orders J0175 and H5495 were added as deletions based on a review of material costs and the determination that the work was a capital improvement.

Although material cost for Work Order J4158 exceeds the \$1000 threshold, the Work Order was not deleted based on determining the work was not a capital improvement.

¹⁴ HQ AFCEA established the \$1,000 material cost threshold for identifying work orders that may be for capital improvements.

Using the original spreadsheet and the list of revised flagged work orders, corrections to the hours in the 7101 report are made. The labor hours for the work orders not associated with the utility system CAC and for work orders associated with capital improvements should be deleted from the baseline total. For work orders that should be reassigned to the utility CAC (work orders that were incorrectly assigned to other CACs), add the total hours to the baseline total.

Using the wastewater example again, **Table 5-5** shows the corrections made on the 7101 report to get the total estimated labor hours. Work orders H3846, H7777, J4158, H0954, and H1776 were assigned to other CACs but should be included with the wastewater system. The hours from these work orders are added to the wastewater system baseline total hours shown in **Table 5-2**. Since work order H3040 is not for work on the wastewater system, its total hours should be subtracted from the baseline total hours.

TABLE 5-5
Corrections to Initial Baseline Labor Hours
Government Cost Estimate

| CAC | Account Title | Civilian Labor Hours | Military Labor Hours | Total Labor Hours |
|-----------------------------------|---|----------------------|----------------------|-------------------|
| <u>Operations</u> | | | | |
| 21040 | Purchased Sewage & Liquid Industrial Waste Disposal | 0 | 0 | 0 |
| 27000 | Sewage and Waste Systems | 37 | 0 | 37 |
| <u>Utility Maintenance</u> | | | | |
| 53040 | Maintenance of Other Utility /Distribution Systems | 9,671 | 0 | 9,671 |
| | <u>Work Order</u> <u>Description</u> | | | |
| | H3040 BOILER LEAKING | (35) | 0 | |
| | H3846 PUMP MANHOLES 36 AND | 16 | 0 | |
| | H7777 MANHOLE OVERFLOW | 4 | 0 | |
| | J4158 SEWER COVER CRACKED | 64 | 0 | |
| | H0954 SEWER LINE BREAK | 32 | 0 | |
| | H1776 CLEAN OUT SEWER LINE | 4 | 0 | |
| 53050 | Maintenance of Industrial Wastewater Systems | 0 | 0 | 0 |
| | Amended FY99 Total Shop Hours | 9,793 | 0 | 9,793 |

Note:

This table shows the corrections to Table 5-1 (initial baseline labor hours from the 7101 report) based on the work orders listed in Table 5-4.

5.1.1.2 Correcting Direct Labor Hours by Reviewing the Recurring Work Program (RWP)

Common recurring work is sometimes collected on a single work order, which in turn would only be assigned to a single CAC. This typically includes work performed as a part of

the RWP. RWP work orders need to be reviewed to see if the work needs to be apportioned to more than one utility system. Sometimes common work to one or more systems, e.g., valve exercising, gets done under one RWP work order and therefore only shows up on the 7101 and 461 reports under one CAC. For work orders that are determined to be for recurring work on multiple systems, the labor hours should be apportioned to each CAC. CE personnel should be interviewed to determine how the hours should be apportioned.

Table 5-6 is an example of a RWP work order review where the hours from two work orders need to be redistributed to other CACs because of shared work on multiple systems. While the two work orders are listed on the same table, it may be more efficient to list them in separate tables (work orders adding work to the utility system and work orders subtracting work from the utility system) similar to the process used to evaluate work orders, see section 5.1.1.1, Correcting Direct Labor Hours by Reviewing Work Orders.

Continuing with the example, **Table 5-7** shows the corrections made on the 7101 report shown in **Table 5-2** based on RWP work orders shown in **Table 5-6**. The two RWP work orders are added to the list of work orders that represent corrections to the baseline labor hours from the 7101 report.

TABLE 5-6
Recurring Work Program Work Orders Associated with the Wastewater System
Government Cost Estimate

| CAC | RWP WO # | WO Description | Labor Hours | | | Revised Labor Hours | |
|-------|----------|--------------------|-------------|----------|-----------------------|---------------------|----------|
| | | | Civilian | Military | % Assigned to Utility | Civilian | Military |
| 53040 | 00021 | VALVE EXERCISING | 96 | 12 | 33 | (64) | (4) |
| 53060 | 00053 | MANHOLE INSPECTION | 208 | 48 | 25 | 52 | 12 |

Notes: RWP work order 00021 represents an example valve exercising program, where valves throughout the gas, water and wastewater utility system are exercised on a regular basis. The RWP work order is assigned to the wastewater system (CAC 53040); however, only 33% belongs to the wastewater system. Therefore, to revise the baseline hours, 2/3 of the hours (64 hours) must be subtracted. RWP work order 00053 represents an example manhole inspection program assigned to the water system (CAC 53060). Since this RWP item benefits all four utility systems, 25% of the work order (52 hours) must be added to the wastewater system.

TABLE 5-7
Corrections to Initial Baseline Labor Hours
Government Cost Estimate

| | | Labor Hours | | |
|-------|----------------------------|-------------|----------|-------|
| CAC | Account Title | Civilian | Military | Total |
| | <u>Operations</u> | | | |
| 27000 | Sewage and Waste Systems | 37 | 0 | 37 |
| | <u>Utility Maintenance</u> | | | |

TABLE 5-7

Corrections to Initial Baseline Labor Hours
Government Cost Estimate

| | | Labor Hours | | |
|-------|--|-------------|------------|-------------|
| CAC | Account Title | Civilian | Military | Total |
| 53040 | Maintenance of Other Utility /Distribution Systems | 9,671 | 750 | 10,421 |
| | <u>Work Order</u> <u>Description</u> | | | |
| | H3040 BOILER LEAKING | (35) | (4) | (35) |
| | H3846 PUMP MANHOLES 36 AND | 16 | 0 | 16 |
| | H7777 MANHOLE OVERFLOW | 4 | 0 | 4 |
| | J4158 SEWER COVER CRACKED | 64 | 8 | 64 |
| | H0954 SEWER LINE BREAK | 32 | 0 | 32 |
| | H1776 CLEAN OUT SEWER LINE | 4 | 0 | 4 |
| | 00021 VALVE EXERCISING | (64) | (4) | (64) |
| | 00053 MANHOLE INSPECTION | 52 | 12 | 52 |
| 53050 | Maintenance of Industrial Wastewater Systems | 0 | 0 | 0 |
| | Amended FY99 Total Shop Hours | 9,781 | 762 | 10,531 |

Note: This table shows the corrections to Table 5-1 (initial baseline labor hours from the 7101 report) based on the work orders listed in Table 5-3 and the RWP work orders listed in Table 5-5.

5.1.1.3 Shop Supervision

Determine the total supervision hours performed by military and civilian shop personnel from Labor Utilization Code (LUC) 31 from the shop reports. Determine a supervision allocation factor by dividing the total direct hours worked on the utility system by the total direct hours worked by the shop from the shop reports. Then multiply the allocation factor by the military and civilian total supervision hours and add this result to the total direct military and civilian hours respectively.

| Item | Civilian | Military | Total |
|---|----------|----------|-------|
| 1. LUC Code 31 total supervision hours | 500 | 400 | 900 |
| 2. Direct Work Hours on the System being Privatized | 3000 | 2000 | 5000 |
| 3. Total Direct Hours by the Shop | 5000 | 4000 | 9000 |
| 4. Supervision Allocation Factor (#2 / # 3) | 0.6 | 0.5 | |
| 5. Total Direct Labor Hours (#1 * #4) + #2 | 3300 | 2200 | 5500 |

5.1.2 Annual Direct Labor Costs

Annual direct labor costs are calculated as shown below by multiplying the total civilian and military direct hours by the annual civilian and military labor rates respectively.

Civilian labor rates are taken from current civilian pay schedules for the location plus appropriate Retirement and Benefit and Leave & Holiday factors from AFI 65-503. Use step 5 for General Schedule (GS) and step 4 for Federal Wage System (FWS) employees from the local pay tables as the base pay. Military labor rates are taken from AFI 65-503, Table A20-1, Military Pay Rates per Unit of Time – Air Force plus appropriate Personnel Support and Leave & Holiday factors from Table A30-1, AFI 65-503. The column titled Hourly represents the Total Annual Composite Rate from Table A19-1 divided by 2080 hours per year.

5.1.2.1 Civilian Labor Costs including Retirement & Benefits and Leave & Holidays

The civilian component of the labor rate is calculated by dividing the total civilian annual base pay by the total available hours for the shop in the year studied.¹⁵ The total annual base pay is the sum of the base pay of each person assigned to the shop. The base Civilian Personnel Office can provide the pay schedule for each civilian grade in the shop being studied.¹⁶ According to Air Force Instruction 65-503, Attachment 30, Table A30-1, the civilian Retirement & Benefits cost (as of February 2003) is 30.4 percent of the civilian labor base pay and the Leave & Holiday factor is 18% of the civilian labor base pay. Civilian annual labor costs are developed for each shop as follows:

1. List all civilian personnel by grade that are assigned to the shop (cost center). This information is available as a report from WIMS.
2. Determine annual base pay for each person in step 1 using information from Civilian Rate Schedules. This information is available from the base Civilian Personnel Office.
3. Determine the annual pay for time assigned to the shop for each person. Add the annual pay for all civilian personnel and divide by the total number of hours assigned to the shop. This provides the average base pay rate for civilian hours.
4. Multiply the average base pay civilian rate by the civilian Retirement & Benefits factor plus Leave & Holiday factor (1.484) to determine the total annual civilian hourly rate.
5. Multiply the total annual civilian hourly rate by the total direct civilian hours to get the total annual civilian labor cost.

5.1.2.2 Military Labor Costs Including Personnel Support and Leave & Holidays

According to Air Force Instruction 65-503, Attachment 30, Table A30-1, the personnel support cost for military labor is calculated as 11 percent of the military Standard Composite Rate w/PCS for enlisted personnel and 6 percent for officers. The Leave & Holiday factor is 14% of the Standard Composite Rate w/PCS for both officers and Enlisted personnel. For direct labor hours and direct costs charged to work orders, by actual time account (ATA) cost centers, only enlisted military are included. Officers are only assigned to estimated time account (ETA) cost centers and their direct hours are accounted for by incremental direct costs. Military annual labor costs are developed for each shop as follows:

1. List all military personnel by rank that are assigned to the shop (cost center). This information is available as a report from WIMS.

¹⁵ This step calculates a labor rate based on total hours, to which benefits (including leave, holidays and retirement) must be applied.

¹⁶ For each grade, select "step 5" for GS and "step 4" for FWS employees from the local pay schedule.

- Determine annual composite pay for each person in step 1 using information from AFI 65-503, Table A19-1 or A19-2, Military Annual Standard Composite Pay – Annual Composite Rate Column.
- Determine the annual pay for time assigned to the shop for each person. Add the annual pay for all military personnel and divide by the total number of hours assigned to the shop. This provides the average composite pay rate for military hours.
- Multiply the average composite military rate by military personnel support factor plus Leave & Holiday factor (1.25 for enlisted) to determine total annual military hourly rate.
- Multiply the total annual military hourly rate by the total annual direct military hours from paragraph 5.1.1.3 to get the total annual military labor cost.

Table 5-8 is an example of how the Total Estimated Labor Hours for Cost Center 471 is developed based on the preceding steps.

TABLE 5-8

Total Estimated Labor Hours, Government Cost Estimate

| Civilian Personnel in Cost Center 471 | | | | | | |
|---|-------------------|---------------------------|----------------------|----------------|-------------|---------------------------|
| Grade | Employee Initials | No. of Personnel Assigned | Annual Base Pay Rate | Weeks Assigned | Total Weeks | Total Civilian Annual Pay |
| CIV-WS-12 | abc | 1 | \$ 50,004.52 | 26 | 26 | \$ 25,002.26 |
| CIV-WG-11 | def | 1 | \$ 36,668.59 | 52 | 52 | \$ 36,668.59 |
| | | | | | 0 | \$ - |
| Total | | 2 | | 78 | 78 | \$ 61,670.85 |
| Total available hours = { 78 total weeks / 52 weeks per year } x { 2,087 hours per year } ==> | | | | | | 3,130.50 |
| Military Personnel in Cost Center 471 | | | | | | |
| Rank/Grade | Employee Initials | No. of Personnel Assigned | Annual Base Pay Rate | Weeks Assigned | Total Weeks | Total Military Annual Pay |
| Mil-E7 - MSgt | abc | 1 | \$ 63,721.35 | 52 | 52 | \$ 63,721.35 |
| Mil-E6 - TSgt | def | 2 | \$ 56,886.02 | 52 | 104 | \$113,772.03 |
| | | | | | 0 | \$ - |
| Total | | 3 | | 104 | 156 | \$177,493.38 |
| Total available hours = { 156 total weeks / 52 weeks per year } x { 2,080 hours per year } ==> | | | | | | 6,240.00 |
| Hourly Labor Rates | | | Civilian Rate | Military Rate | | |
| Cost per Available Labor Hour | | | \$ 19.70 | \$ 28.44 | | |
| Leave and Holidays | | | 18.00% \$ 3.55 | 14.00% \$ 3.98 | | |
| Enlisted Personnel Support | | | \$ - | 11.00% \$ 3.13 | | |
| Civilian Retirement and Benefits | | | 30.40% \$ 5.99 | \$ - | | |
| Total Labor Rates | | | \$ 29.23 | \$ 35.56 | | |
| Total Labor Cost for Cost Center 471 | | | | | | |
| | | | Civilian Cost | Military Cost | | |
| Total hours worked on the Wastewater collection system ==> | | | 200 | 400 | | |
| Total FY2002 labor cost = { labor rate } x { total labor hours worked on the Wastewater collection system ==> | | | \$ 5,846.96 | \$ 14,222.23 | | |
| Total FY2002 Direct Labor Costs = 5846.96 + 14222.23 ==> | | | \$ 20,069.19 | | | |

5.1.3 Material Costs

Materials costs are determined for each cost account by reviewing and evaluating existing financial records. There are direct material costs, such as those derived from work orders, and indirect material costs, such as those derived from using common shop supplies. For the purpose of the developing the *Government Cost Estimate* all material costs will be shown as direct costs.

5.1.3.1 Direct Materials

Materials that are purchased for specific work orders are considered direct materials. The costs for these materials are shown on the 7101 and 461 reports, and just like the initial baseline for labor hours, the initial baseline for direct material costs is determined using the 7101 and 461 reports as corrected by a review of work orders.¹⁷ The initial baseline must be corrected by adding or subtracting the material costs for those work orders flagged when the work orders were reviewed to determine total labor hours, see section 5.1.1.1, Correcting Direct Labor Hours by Reviewing Work Orders.

5.1.3.2 Indirect Materials

Indirect materials are the common supplies purchased and kept on hand for routine and emergency work performed by the shops that do direct work on work orders. Because these materials are not purchased for any particular facility or utility system, they are prorated to the various cost centers and charged as part of the shop rate. Therefore, the Shop Rate Analysis Report (SRAR)(PCN SF 022-474) must be used to estimate the total cost of indirect materials:

1. Using the SRAR 474, identify the total indirect material cost and the total direct hours for the fiscal year being studied.
2. Divide the total indirect material cost by the total direct hours shown on the SRAR 474 report to establish the indirect material cost rate.
3. Multiply the indirect material cost rate by the total direct hours developed for the applicable utility system in section 5.1.1, Annual Direct Labor Hours, to determine the total indirect material cost.
4. Add the indirect material cost to the direct material cost to get the total cost for materials.

5.1.4 Vehicles Costs

Vehicle costs include General Services Administration (GSA) vehicle costs and blue fleet vehicle costs. The Vehicle Control Office would be the best source of information for calculating vehicle costs.

5.1.4.1 GSA & Leased Vehicles

The GSA & Leased vehicle cost represents the annual lease cost for vehicles assigned to the shop. These costs will not show up on the 7101 or the 461 reports, and may not be accounted

¹⁷ The Microsoft Excel spreadsheet developed to review and adjust total labor hours based on actual work orders is also used to determine total material costs.

for on the Shop Rate Analysis Reports. Therefore, the annual lease cost should be obtained from the CE Financial Manager. The annual lease cost should include all costs for the vehicles, including O&M, except for fuel. The fuel cost should be obtained from the shop reports for each GSA or Leased vehicle Based on interviews with CE personnel, develop an allocation rate¹⁸ to apportion the cost of the vehicles used by the utility system to the utility system.

The annual cost for GSA vehicles is calculated as follows:

1. Obtain the annual lease payment and mileage for each vehicle used by the utility system.
2. Based on interviews with CE personnel and the CE Financial Manager, estimate a representative fuel price for the fiscal year being studied.
3. For each vehicle identified, estimate its fuel performance (in miles per gallon) and its utilization rate based on interviews with CE personnel.
4. Calculate the annual fuel cost by multiplying the total mileage by times the miles per gallon (mpg) and times the cost per gallon.
5. Add the lease payment and the fuel cost to determine the total annual cost.
6. Multiply the utilization rate by the annual cost to determine the cost of the vehicle attributable to the utility system.
7. Add the annual costs for each vehicle to determine the total annual cost of GSA vehicles.

Table 5-9 is an example of how to calculate the annual GSA vehicle cost attributable to the utility system.

TABLE 5-9
GSA Vehicle Example Cost Development
Government Cost Estimate

| Vehicle | Annual Lease payment | Total Mileage | Fuel Price (\$/gal) | MPG | Fuel Cost (\$) | Total Annual Cost (\$) | Utilization Rate | Annual Cost (\$) |
|---------------------|-----------------------------|----------------------|----------------------------|------------|-----------------------|-------------------------------|-------------------------|-------------------------|
| Pickup | \$2,000 | 10,000 | \$1.50 | 15 | \$1,000 | \$3,000 | 80% | \$2,400.00 |
| Sedan | \$1,500 | 18,500 | \$1.50 | 25 | \$1,110 | \$2,610 | 25% | \$652.50 |
| Total ==> | | | | | | | | \$3,052.50 |

5.1.4.2 Fleet Vehicles

Fleet vehicle costs should be obtained from the Cost and Performance Report provided by the transportation squadron or AFI65-503 Table A14-1 if accurate records are not available for specific vehicles.¹⁹ Separate components for O&M (typical costs include labor, repairs,

¹⁸ The allocation rate is the percentage of time the vehicle is used by the cost center.

¹⁹ Although the SRAR includes a component for CE vehicle costs as a portion of the shop rate, it is not all-inclusive of the total cost.

fuels, lubricants, and materials) and vehicle replacement are calculated for each vehicle, which are then added together to get a total cost per vehicle. An allocation rate should be applied to each vehicle to determine the costs that will be apportioned to the utility system. The annual cost for vehicle O&M is calculated as follows:

1. Using the Cost and Performance report, identify the O&M cost for each vehicle used by the utility system.
2. Multiply the O&M cost by the allocation rate to determine the O&M cost per vehicle attributable to the utility system.
3. The annual capital cost for vehicle replacement is calculated based on the vehicle's replacement cost and an annualization factor based on its life expectancy, using the current OMB circular A-94 nominal discount rate and SAF/FMC application of the discount rates by year shown in Table 5-10.²⁰

TABLE 5-10
SAF/FMC Discount Rates
as of January 2003

| Period of Analysis (Years) | | Constant Dollar | Current Dollar |
|----------------------------|------------------------|-----------------|----------------|
| More Than | But Less Than or Equal | Real Rate | Nominal Rate |
| | 3 | 1.6 | 3.1 |
| 3 | 5 | 1.9 | 3.6 |
| 5 | 7 | 2.2 | 3.9 |
| 7 | 10 | 2.5 | 4.2 |
| 10 | 30 | 3.2 | 5.1 |
| | 30 or beyond | 3.2 | 5.1 |

Annualization factors for life expectancies between 8 and 25 years using nominal discount rates between 4.8 to 6.5 percent are provided in **Attachment 1**.

The annual cost for vehicle replacement is calculated as follows:

1. Using the Cost and Performance report, identify the vehicles used to support the utility system. For each vehicle identified, determine its allocation rate.
2. Identify each vehicle's replacement cost and life expectancy. This information should be obtained from the transportation squadron.
3. Identify the applicable annualization factor for each identified vehicle using **Tables 5-9 and 5-10**.
4. Calculate the annual cost for vehicle replacement by multiplying the annualization factor by the vehicle's replacement cost and its allocation factor.

²⁰ The discount rate should be coordinated with the economist that will be performing the economic analysis.

- Calculate the total annual cost for vehicle replacement by adding the annual costs for all of the identified vehicles.
- Calculate the total annual cost for fleet vehicles by adding the O&M cost to the annual cost for vehicle replacement.

Table 5-11 presents an example of fleet vehicle costs.

| Government-owned Vehicle Costs | | | | | | | | | | |
|---|--------------|------------------|------------------|-------------------|------------------|-----------------------|-------------------------|-------------------------|---|--------------------------------|
| Registration Number | Vehicle Type | Utilization Rate | O&M Vehicle Cost | Annual O&M Cost * | Replacement Cost | Life Expectancy (yrs) | Annualization Factor ** | Annual Vehicle Cost *** | Government-owned Vehicle Cost **** | Vehicle Replacement Cost ***** |
| 96B1370 | 1/4TonPickUp | 100% | \$ 1,996 | \$ 1,996.00 | \$ 12,936 | 9 | 13.57% | \$ 1,755.56 | \$ 3,751.56 | \$ 12,936.00 |
| 00B0128 | Van | 25% | \$ 107 | \$ 26.75 | \$ 17,808 | 10 | 12.46% | \$ 554.37 | \$ 581.12 | \$ 4,452.00 |
| 96B099 | 6PAX | 50% | \$ 733 | \$ 366.50 | \$ 22,169 | 15 | 9.70% | \$ 1,075.14 | \$ 1,441.64 | \$ 11,084.50 |
| 96D0012 | Backhoe | 20% | \$ 490 | \$ 98.00 | \$ 23,991 | 24 | 7.32% | \$ 351.12 | \$ 449.12 | \$ 4,798.20 |
| | | | | \$ - | | | 0.00% | \$ - | \$ - | \$ - |
| | | | | \$ - | | | 0.00% | \$ - | \$ - | \$ - |
| | | | | \$ - | | | 0.00% | \$ - | \$ - | \$ - |
| | | | | \$ - | | | 0.00% | \$ - | \$ - | \$ - |
| | | | | \$ - | | | 0.00% | \$ - | \$ - | \$ - |
| | | | | \$ - | | | 0.00% | \$ - | \$ - | \$ - |
| Table Notes | | | | | | | | | Total FY2002 Government-owned vehicle cost => \$ 6,223.43 | |
| * Annual O&M cost = { O&M vehicle cost } x { utilization rate } | | | | | | | | | Total FY2002 Government-owned vehicle cost => \$ 6,223.43 | |
| ** Annualization factor calculated based on the vehicle's life expectancy and the SAF/FMC discount rates shown in the table below | | | | | | | | | Vehicle replacement cost in FY2002 => \$ 33,269.70 | |
| *** Annual vehicle cost = { utilization rate } x { replacement cost } x { annualization factor } | | | | | | | | | Vehicle replacement cost in FY2002 => \$ 33,269.70 | |
| **** Government-owned vehicle cost = { annual O&M cost } + { annual vehicle cost } | | | | | | | | | Total FY2002 vehicle cost \$ 6,223.43 | |

5.1.5 Facility Costs

Facility costs are composed of O&M costs, a provision for investment or replacement costs, utility costs, and other service costs (custodial, refuse, etc.). Facility costs are calculated for different types of facilities are provided in Attachment 2 and are adjusted to the location based on geographic location factors.²¹ Facility costs are included for office, storage, and maintenance facilities.

The following steps are used to determine the annual CE facility costs attributable to the utility system.

- Identify the CE facilities (shop space, storage space, covered storage, open storage, etc.) used to support the utility system. The total square footage of the facilities can be obtained from real property records or drawings.
- For each facility type identified, determine the space used for the utility system by either of the following methods:
 - Determine a facility allocation rate by dividing the number of total direct hours of people working on the utility system that use the facility by the total direct hours of all people using the facility. Then multiply the total square footage by the allocation rate to determine the space used by the utility system, or
 - Measure the space used by the utility system.

²¹ Adjustment factors for location come from the Historical Air Force Construction Cost Handbook. Facility costs (replacement, O&M, utilities, refuse, etc.) are based on facility type and are provided by AFCESA/CESC.

3. Multiply the facility square footage by the facility cost for each type of facility (Attachment 2 or the latest facility cost memorandum from HQ AFCESA/CESC) and by the geographic location factor from the HQ AFCESA Historical Air Force Construction Cost Handbook to determine the cost for each facility.
4. Add the costs for each facility to determine the total facility cost.

5.1.6 Contract Costs

Two types of contracts are evaluated and included in the cost estimate: 1) projects performed by contract and 2) service contracts. Through discussions with Civil Engineer personnel (shops and engineering) make sure any contracts performed on cycles greater than annual are included in the contract costs. Just divide the total contract cost by the number of years between performance of the contract. For example, if tree trimming is performed by contract for the electric distribution system every 5 years then divide the total contract cost by 5 to get the annual cost of the contract.

5.1.6.1 Projects by Contract

The “Projects by Contract” cost represents work performed on the utility system by contract, with the exception of service contracts. This cost is shown on the 7101 and 461 reports. IMPAC logs, Form 9 logs, and interviews can validate as well as provide additional information about other projects that may not be reflected on the 7101 and 461 reports.

Very few work orders will include project by contract costs; therefore, for each work order assigned to the CAC representing the utility system, as well as any work orders being reassigned from other CACs to the utility system, should be listed and reviewed in more detail. All of the project costs must be reviewed so that only O&M projects are included; capital projects must be eliminated. For example, a contract project to repair a broken water line would be a maintenance cost and should be included in the estimate. Replacing an old water line would be a capital project and should be eliminated.

Projects for work that does not recur annually should be reviewed with CE personnel to determine if only a portion of the costs should be included. This requires a review of the projects in the current fiscal year, as well as projects in years prior to the fiscal year being studied.²² For example, water towers are not normally stripped and painted each year. This level of maintenance occurs every five to ten years; therefore, if the year being studied included costs for stripping and repainting all of the water towers, a factor may need to be applied to apportion a representative annual cost for this maintenance work. In this example, assuming a ten year cycle of stripping and painting water towers is used, the cost would be spread over ten years. The recurring work factor would therefore be 0.1.

Contract administration costs should be included. If the project does not include costs for contract administration (includes contracting, base CE, accounting, finance, and legal support), or there is insufficient information to determine if contract administration was included, add 4 percent to the contract cost for contract administration.²³ The following steps are used to determine the project by contract costs attributable to the utility system:

²² Projects in the years prior to the fiscal year being studied may have costs that should be prorated into the year of study.

²³ The four percent contract administration estimate was developed by OSD.

1. Identify each project contract, and its cost, applicable to the utility system by reviewing 7101 and 461 reports, and then cross-checking with IMPAC logs, Form 9 logs, and interviews with CE personnel.
2. Determine if the work is recurring or non-recurring (occurs less often than once per year) and whether a non-recurring work factor should be applied.
3. Non-recurring work may be spread across more than one year depending on the project and consultations with CE personnel. Calculate a non-recurring work factor equal to 1 divided by the number of years the work should be spread across.
4. For non-recurring projects, calculate the total project cost by multiplying the project cost by the non-recurring work factor .
5. Based on a review of the project, determine whether or not it included costs for contract administration. If the project did not include costs for contract administration, calculate the contract administration cost by multiplying the project cost by 4 percent.
6. Add all project costs and the contract administration costs to get the total cost attributable to the utility system.

5.1.6.2 Service Contracts

The “Service Contracts” cost is shown on the 7101 and 461 reports. IMPAC logs, Form 9 logs, and interviews can provide additional information about other projects that may not be reflected on the 7101 and 461 reports. All of the service contract costs must be reviewed so that only O&M projects are included; capital projects must be eliminated. For example, testing transformers, dielectric testing of electrical vehicles and equipment, and annual gas leak surveys are typical service contracts for O&M that should be included in the estimate.

Just like project contracts, service contracts should be reviewed with CE personnel to determine if only a portion of the costs should be included in the *Government Cost Estimate*. Service contracts in prior fiscal years should also be reviewed.

Contract administration costs should be included. If the project does not include costs for contract administration (includes contracting, base CE, accounting, finance, and legal support), or there is insufficient information to determine if contract administration was included, add 4 percent to the contract cost for contract administration. The following steps are used to determine the project by service contract costs attributable to the utility system:

1. Identify each service contract, and its cost, applicable to the utility system by reviewing 7101 and 461 reports, and then cross-checking with IMPAC logs, Form 9 logs, and interviews with CE personnel.
2. Determine if the work is recurring or non-recurring (occurs less often than once per year) and whether a non-recurring work factor should be applied.
3. Non-recurring work may be spread across more than one year depending on the service contract and consultations with CE personnel. Calculate a non-recurring work factor equal to 1 divided by the number of years the work should be spread across.

4. Based on a review of the service contract, determine whether or not it included costs for contract administration. If the project did not include costs for contract administration, calculate the contract administration cost by multiplying the project cost by 4 percent.
5. For non-recurring service contracts, calculate the service contract cost by multiplying the service contract cost by the non-recurring work factor.
6. Add all service contract costs and contract administration costs to get the total cost attributable to the utility system.

5.1.7 Environmental

Environmental costs include the direct costs associated with operating and maintaining the utility system, such as waste disposal, permits, fees, sampling, etc. The environmental flight's labor to manage the waste is included in the incremental direct cost component of the estimate (see section 5.2, Incremental Direct Cost).

Interviews with the Environment Flight and Bio-environment Engineer are likely to be the best source of information for determining environmental costs. Information can also be obtained by reviewing Form 9 and IMPAC logs or other contracts.

5.1.8 Supporting Utilities Costs

Some utility systems need services from other utilities (e.g., water treatment plants and wastewater systems need electric service). The usage can be derived from utility rate setup sheets, utility logs, and equipment data, or estimated based on interviews with CE personnel. Use the Non-Federal reimbursable rates calculated according to AFI 32-1061 times the usage to calculate the cost for supporting utilities.

5.1.9 Other CE Costs

Other costs include training and TDY costs.

5.1.9.1 Training Costs

Additional costs for training are the cost of the training, not the labor associated with attending the training. The cost of each training class directly associated with the utility system being privatized is calculated and included with Other CE Costs.

5.1.9.2 TDY Costs

There are two types of TDY costs.

1. TDY by actual time accounting (ATA) shop personnel to perform work at sites away from their main duty location or to attend training on the utility system. The TDY cost is added together for all TDYs of this type and included with Other CE Costs.
2. TDY by Incremental Direct Cost personnel. Total all cost for all TDYs by all people who account for their time in Incremental Direct Costs and divide it by the total direct hours of all shops. Then multiply this rate by the total hours worked on the utility system and include it with the Other CE Costs.

5.1.9.3 Fire Protection Costs

Fire Protection cost is included with Other CE cost. This is the total annual Fire Protection cost the base is planning on charging the new owner.

5.1.10 Annual Incremental Direct Labor Costs

The “incremental direct cost” portion of the shop rate includes the cost of military and civilian personnel (direct labor, and benefits) for supervisors, work controllers, planners, maintenance engineers, material control personnel, and others who do not charge labor against work orders. Because there are some military personnel working in these shops, the incremental direct cost in the SRAR may not be all-inclusive. Therefore, the incremental direct cost should be re-calculated using personnel information, rank or grade salary, and AFI 65-503 factors. The following steps are used to calculate the incremental direct costs:

1. Based on a listing of personnel in the shop²⁴, list all personnel by rank or grade for cost centers 430, 431, 435, 436, 438, 440, 450, 460, and 470.
2. Determine the annual pay for each person in step 1 using information from the Military Annual Standard Composite Pay (AFI 65-503) Local Civilian Rate Schedules (provided by the base Civilian Personnel Office) by grade. Use step 5 for GS and step 4 for FWS employees from the local pay tables as the base pay. If only hourly data is available, calculate annual pay rates by multiplying the hourly rate by 2,087 hours for civilians and 2080 hours for military.
3. Apply the appropriate markup (see sections 5.1.3, Civilian Labor Costs including Retirement & Benefits and Leave & Holidays, and 5.1.4, Military Labor Costs Including Personnel Support and Leave & Holidays) to the calculated cost from step 3 in accordance with AFI 65-503.
4. Add the cost for all personnel.
5. Using the SRAR 475 (use the 475 report that includes the cost center associated with the utility), identify the total direct hours for all of the actual time accounting shops (ATA). The list of shops on the report should be reviewed to make sure that only ATA shops are included. If the report includes shops that are not ATA shops, their total direct hours will have to be obtained from the SRAR 474 report and subtracted from the total taken from the SRAR 475 report.
6. Calculate the incremental direct rate by dividing the cost for all personnel (step 4) by the total direct hours (step 5).

Multiply the rate from step 6 by the total direct hours spent on the utility system. This step provides the total annual incremental direct labor costs for the utility system.

5.1.11 Annual Insurance Costs

The government insurance cost will be calculated using the procedures in OMB Circular A-76 Revised Supplemental Handbook, Part II, Chapter 2, paragraph D.7. The Net Book Value of the utility system, vehicles, equipment, and facilities is calculated by taking 50% of the Replacement Cost New. Add the average monthly value of materials and supplies to the

²⁴ The APER File may be an appropriate source to obtain this data

net book value of the system, vehicles, equipment, and facilities and then multiply this total by 0.5% to determine the casualty portion of insurance. The liability portion of insurance will be calculated by multiplying the total adjusted status quo labor costs times 0.7%. Insurance is calculated for both the Unadjusted Status Quo Costs as well as for the Adjustments to the Status Quo Costs.

5.2 General and Administrative Costs

General and Administrative (G&A) costs are not allocated to utility systems in the Air Force accounting system. The G&A costs are calculated by multiplying labor costs (military, civilian, incremental direct costs, Contract Administration) by 25 percent. This percentage includes such costs as support facility cost, office supplies, communications, management costs, government insurance, other support activities, etc.

6.0 Cost Estimate Adjustments

It may be necessary to adjust the *Government Cost Estimate* to reflect adjusted status quo costs for use in the economic analysis. The following paragraphs describe adjustments that may need to be made to the cost estimate. Documenting the source of any adjustment is critical to developing a defensible and certifiable *Government Cost Estimate*.

6.1 RWP Adjustments

O&M deficiencies can occur for several reasons, including insufficient labor hours available to perform needed maintenance or insufficient funding for materials required to accomplish needed repairs. Whatever the reason, the cost estimate must include an adjustment to allow for comparison to offerors proposals. The following paragraphs discuss adjustments to the RWP that may be necessary.

6.1.1 Maintenance Action Sheets

The maintenance action sheet (MAS) shows the number of hours that should be performed in the system. Some of the hours are based on engineering performance standards. Others are based on non-engineering standards. Non-engineering standard hours are based on experience or manufacturer recommendations. Non-engineering standard hours are not adjusted by WIMS to account for the general data factor that is applied to engineering performance standard hours. The general data factor is based on travel zones, craft code, and crew size. Therefore, the MAS hours may underestimate the actual maintenance requirement for the system. Adjustments, if necessary, are made in coordination with shop personnel.

6.1.2 Compliance Reports

Compliance reports identify the number of recurring tasks that were completed during the report period. If a shop has a compliance record of less than 100 percent, the recurring hours are adjusted upward accordingly.

6.1.3 Permanently Deferred Records

This report shows the number hours that were permanently deferred because of a lack of personnel or other reasons. If there are any records listed in this report for the utility system, then the hours are added to the recurring work hours.

6.1.4 Non-performed Recurring Maintenance

For systems that are not maintained in accordance with Air Force standards, the recurring work program records must be adjusted. For example, if there is no record and the underground electric system is not being inspected on a 2-year cycle, as recommended by AFJMAN 32-1083, through visual or other inspections within manholes, then a cost for inspections should be added. An annual cost (one-half of the cost every 2 years) should be estimated based on some quantifiable data (e.g., number of manholes, linear footage of cable, etc.) and either performed by contract or in-house Government workforces. The annual cost should be all-inclusive for the activity and added to the estimate.

6.2 Training

Training information provided by the shop and the training manager should be reviewed and adjusted as necessary. An adjustment would represent additional training that should be provided to the utility personnel to maintain proficiency.

Attachment 1 – Vehicle Annualization Factor

| Life Expectancy | Nominal Discount Rate | | | | | | | | | | | | | | | | | |
|-----------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 4.80% | 4.90% | 5.00% | 5.10% | 5.20% | 5.30% | 5.40% | 5.50% | 5.60% | 5.70% | 5.80% | 5.90% | 6.00% | 6.10% | 6.20% | 6.30% | 6.40% | 6.50% |
| 8 | 15.3% | 15.4% | 15.5% | 15.5% | 15.6% | 15.7% | 15.7% | 15.8% | 15.8% | 15.9% | 16.0% | 16.0% | 16.1% | 16.2% | 16.2% | 16.3% | 16.4% | 16.4% |
| 9 | 13.9% | 14.0% | 14.1% | 14.1% | 14.2% | 14.3% | 14.3% | 14.4% | 14.4% | 14.5% | 14.6% | 14.6% | 14.7% | 14.8% | 14.8% | 14.9% | 15.0% | 15.0% |
| 10 | 12.8% | 12.9% | 13.0% | 13.0% | 13.1% | 13.1% | 13.2% | 13.3% | 13.3% | 13.4% | 13.5% | 13.5% | 13.6% | 13.7% | 13.7% | 13.8% | 13.8% | 13.9% |
| 11 | 11.9% | 12.0% | 12.0% | 12.1% | 12.2% | 12.2% | 12.3% | 12.4% | 12.4% | 12.5% | 12.5% | 12.6% | 12.7% | 12.7% | 12.8% | 12.9% | 12.9% | 13.0% |
| 12 | 11.2% | 11.2% | 11.3% | 11.3% | 11.4% | 11.5% | 11.5% | 11.6% | 11.7% | 11.7% | 11.8% | 11.9% | 11.9% | 12.0% | 12.1% | 12.1% | 12.2% | 12.3% |
| 13 | 10.5% | 10.6% | 10.6% | 10.7% | 10.8% | 10.8% | 10.9% | 11.0% | 11.0% | 11.1% | 11.2% | 11.2% | 11.3% | 11.4% | 11.4% | 11.5% | 11.6% | 11.6% |
| 14 | 10.0% | 10.0% | 10.1% | 10.2% | 10.2% | 10.3% | 10.4% | 10.4% | 10.5% | 10.6% | 10.6% | 10.7% | 10.8% | 10.8% | 10.9% | 11.0% | 11.0% | 11.1% |
| 15 | 9.5% | 9.6% | 9.6% | 9.7% | 9.8% | 9.8% | 9.9% | 10.0% | 10.0% | 10.1% | 10.2% | 10.2% | 10.3% | 10.4% | 10.4% | 10.5% | 10.6% | 10.6% |
| 16 | 9.1% | 9.2% | 9.2% | 9.3% | 9.4% | 9.4% | 9.5% | 9.6% | 9.6% | 9.7% | 9.8% | 9.8% | 9.9% | 10.0% | 10.0% | 10.1% | 10.2% | 10.2% |
| 17 | 8.7% | 8.8% | 8.9% | 8.9% | 9.0% | 9.1% | 9.1% | 9.2% | 9.3% | 9.3% | 9.4% | 9.5% | 9.5% | 9.6% | 9.7% | 9.8% | 9.8% | 9.9% |
| 18 | 8.4% | 8.5% | 8.6% | 8.6% | 8.7% | 8.8% | 8.8% | 8.9% | 9.0% | 9.0% | 9.1% | 9.2% | 9.2% | 9.3% | 9.4% | 9.4% | 9.5% | 9.6% |
| 19 | 8.1% | 8.2% | 8.3% | 8.3% | 8.4% | 8.5% | 8.5% | 8.6% | 8.7% | 8.8% | 8.8% | 8.9% | 9.0% | 9.0% | 9.1% | 9.2% | 9.2% | 9.3% |
| 20 | 7.9% | 8.0% | 8.0% | 8.1% | 8.2% | 8.2% | 8.3% | 8.4% | 8.4% | 8.5% | 8.6% | 8.6% | 8.7% | 8.8% | 8.9% | 8.9% | 9.0% | 9.1% |
| 21 | 7.7% | 7.7% | 7.8% | 7.9% | 7.9% | 8.0% | 8.1% | 8.1% | 8.2% | 8.3% | 8.4% | 8.4% | 8.5% | 8.6% | 8.6% | 8.7% | 8.8% | 8.9% |
| 22 | 7.5% | 7.5% | 7.6% | 7.7% | 7.7% | 7.8% | 7.9% | 7.9% | 8.0% | 8.1% | 8.2% | 8.2% | 8.3% | 8.4% | 8.4% | 8.5% | 8.6% | 8.7% |
| 23 | 7.3% | 7.3% | 7.4% | 7.5% | 7.6% | 7.6% | 7.7% | 7.8% | 7.8% | 7.9% | 8.0% | 8.1% | 8.1% | 8.2% | 8.3% | 8.3% | 8.4% | 8.5% |
| 24 | 7.1% | 7.2% | 7.2% | 7.3% | 7.4% | 7.5% | 7.5% | 7.6% | 7.7% | 7.7% | 7.8% | 7.9% | 8.0% | 8.0% | 8.1% | 8.2% | 8.3% | 8.3% |
| 25 | 7.0% | 7.0% | 7.1% | 7.2% | 7.2% | 7.3% | 7.4% | 7.5% | 7.5% | 7.6% | 7.7% | 7.7% | 7.8% | 7.9% | 8.0% | 8.0% | 8.1% | 8.2% |

Attachment 2 – Facility Cost

Costs as of 7 March 2003 in FY2003 Dollars

| OSD | | Replacement New - FY2003\$ | Annualized Replacement Cost - FY2003\$ | O&M - FY2003\$ | RPS FY2003\$ | Total | |
|---------------------|--------------------------|----------------------------------|--|-------------------|-----------------|---------------------|----|
| Facility Account | | | | | | \$/UM - FY2003\$ | UM |
| Code | Facility | | | | | | |
| 2191 | Shop | \$133.74 | \$7.44 | \$3.35 | \$1.41 | \$12.20 | SF |
| 4411 | Warehouse | \$96.19 | \$5.35 | \$1.71 | \$1.01 | \$8.07 | SF |
| 4422 | Covered Storage | \$37.00 | \$2.06 | \$1.03 | \$0.39 | \$3.48 | SF |
| 4521 | Open Storage | \$5.97 | \$0.04 | \$0.02 | \$0.06 | \$0.12 | SF |
| 2141 | Vehicle Maintenance Shop | \$175.97 | \$9.79 | \$1.92 | \$1.85 | \$13.56 | SF |
| | General Administrative | | | | | | |
| 6100 | Building | \$164.24 | \$9.14 | \$2.39 | \$1.73 | \$13.26 | SF |